

*conditions.* You must conduct the performance test when the emission capture system and add-on control device are operating at a representative flow rate, and the add-on control device is operating at a representative inlet concentration. You must record information that is necessary to document emission capture system and add-on control device operating conditions during the test and explain why the conditions represent normal operation.

(b) You must conduct each performance test of an emission capture system according to the requirements in § 63.3554. You must conduct each performance test of an add-on control device according to the requirements in § 63.3555.

**§ 63.3554 How do I determine the emission capture system efficiency?**

The capture efficiency of your emission capture system must be 100 percent to use the control efficiency/outlet concentration option. You may assume the capture system efficiency is 100 percent if both of the conditions in paragraphs (a) and (b) of this section are met.

(a) The capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and directs all the exhaust gases from the enclosure to an add-on control device.

(b) All coatings and thinners used in the coating operation are applied within the capture system, and coating solvent flash-off, curing, and drying occurs within the capture system. This criterion is not met if parts enter the open shop environment when being moved between a spray booth and a curing oven.

**§ 63.3555 How do I determine the outlet THC emissions and add-on control device emission destruction or removal efficiency?**

You must use the procedures and test methods in this section to determine either the outlet THC emissions or add-on control device emission destruction or removal efficiency as part of the performance test required by § 63.3550. You must conduct three test runs as specified in § 63.7(e)(3), and each test run must last at least 1 hour.

(a) For all types of add-on control devices, use the test methods specified in paragraphs (a)(1) through (5) of this section.

(1) Use Method 1 or 1A of appendix A to 40 CFR part 60, as appropriate, to select sampling sites and velocity traverse points.

(2) Use Method 2, 2A, 2C, 2D, 2F, or 2G of appendix A to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use Method 3, 3A, or 3B of appendix A to 40 CFR part 60, as appropriate, for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B, the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas in ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus]" (incorporated by reference, see § 63.14).

(4) Use Method 4 of appendix A to 40 CFR part 60 to determine stack gas moisture.

(5) Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run.

(b) Measure total gaseous organic mass emissions as carbon at the inlet and outlet of the add-on control device simultaneously using either Method 25 or 25A of appendix A to 40 CFR part 60 as specified in paragraphs (b)(1) through (3) of this section. You must use the same method for both the inlet and outlet measurements.

(1) Use Method 25 of appendix A to 40 CFR part 60 if the add-on control device is an oxidizer, and you expect the total gaseous organic concentration as carbon to be more than 50 ppm at the control device outlet.

(2) Use Method 25A of appendix A to 40 CFR part 60 if the add-on control device is an oxidizer, and you expect the total gaseous organic concentration as carbon to be 50 ppm or less at the control device outlet.

(3) Use Method 25A of appendix A to 40 CFR part 60 if the add-on control device is not an oxidizer.

(4) You may use Method 18 of appendix A to 40 CFR part 60 to subtract methane emissions from measured

§ 63.3556

40 CFR Ch. I (7–1–12 Edition)

total gaseous organic mass emissions as carbon.

(5) Alternatively, any other test method or data that have been validated according to the applicable procedures in Method 301 of 40 CFR part 63, appendix A, and approved by the Administrator may be used.

(c) If two or more add-on control devices are used for the same emission stream, then you must measure emissions at the outlet of each device. For example, if one add-on control device is a concentrator with an outlet for the high-volume dilute stream that has been treated by the concentrator and a second add-on control device is an oxidizer with an outlet for the low-vol-

ume, concentrated stream that is treated with the oxidizer, you must measure emissions at the outlet of the oxidizer and the high-volume dilute stream outlet of the concentrator.

(d) For each test run, determine the total gaseous organic emissions mass flow rates for the inlet and outlet of the add-on control device using Equation 1 of this section. If there is more than one inlet or outlet to the add-on control device, you must calculate the total gaseous organic mass flow rate using Equation 1 of this section for each inlet and each outlet and then total all of the inlet emissions and total all of the outlet emissions.

$$M_f = Q_{sd}C_c(12)(0.0416)(10^{-6}) \quad (\text{Eq. 1})$$

Where:

$M_f$  = Total gaseous organic emissions mass flow rate, kg/h.

$C_c$  = The concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, ppmvd.

$Q_{sd}$  = Volumetric flow rate of gases entering or exiting the add-on control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters/hour (dscm/h).

0.0416 = Conversion factor for molar volume, kg-moles per cubic meter (mol/m<sup>3</sup>) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

NOTE: If  $M_f$  is calculated in English units (lb/h), the conversion factor for molar volume is 0.00256 lb-moles per cubic foot (mol/ft<sup>3</sup>).

(e) For each test run, determine the add-on control device organic emissions destruction or removal efficiency using Equation 2 of this section.

$$\text{DRE} = 100 \times \frac{M_{fi} - M_{fo}}{M_{fi}} \quad (\text{Eq. 2})$$

Where:

DRE = Organic emissions destruction or removal efficiency of the add-on control device, percent.

$M_{fi}$  = Total gaseous organic emissions mass flow rate at the inlet(s) to the add-on control device, using Equation 1 of this section, kg/h.

$M_{fo}$  = Total gaseous organic emissions mass flow rate at the outlet(s) of the add-on control device, using Equation 1 of this section, kg/h.

(f) Determine the emission destruction or removal efficiency of the add-on control device as the average of the efficiencies determined in the three test runs and calculated in Equation 2 of this section.

**§ 63.3556 How do I establish the emission capture system and add-on control device operating limits during the performance test?**

During the performance test required by § 63.3550 and described in §§ 63.3553, 63.3554, and 63.3555, you must establish the operating limits required by § 63.3492 according to this section, unless you have received approval for alternative monitoring and operating limits under § 63.8(f) as specified in § 63.3492.

(a) *Thermal oxidizers.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (a)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test